

## Rotation: Coronary Care Unit at Johns Hopkins Hospital (CCU)

**Director:** Dr. Steven Schulman

**Faculty:** Drs. Becker, Gerstenblith, Lange, Lowenstein Marban, Thiemann, Wittstein, Weiss, J., and Wu

**Rotation Hours:** Mon - Fri, 8am to 7 pm; 2 weekends off; Sat and Sun, 8 am to 7 pm.

### A. Coronary Care Unit: Patient Care

	<b>Principal Educational Goals</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
1.	Take a complete medical history and perform a careful and accurate physical examination with a cardiology focus.	DPC, AR	AE
2.	Ability to recognize the physical findings of chronic congestive heart failure, acute pulmonary edema, mitral regurgitation, mitral stenosis, aortic stenosis, aortic regurgitation, and tricuspid regurgitation.	DPC, AR, FS	AE
3.	Write concise, accurate and informative histories, physical examinations and progress notes with a cardiology focus.	DPC, AR	AE
4.	Ability to formulate comprehensive and accurate problem lists, differential diagnoses and plans of management for patients with acute cardiac illness.	DPC, AR, CC	AE
5.	Effectively evaluate and manage patients with acute cardiac illness; particularly acute coronary syndromes, acute myocardial infarction, congestive heart failure, pulmonary edema, and acute valvular heart disease.	DPC, AR, CAC	AE
6.	Effectively manage patients with undiagnosed chest pain, including the appropriate use of diagnostic testing.	DPC, AR	AE
7.	Ability to perform and recognize major abnormalities of cardiac stress tests, cardiac Echo and coronary angiograms.	DPC, DSP, EC	AE, DSP
8.	Ability to interpret complex electrocardiograms and rhythm strips.	DPC, AR, ECG, EP	AE
9.	Effectively evaluate and manage patients who have undergone interventional procedures.	DPC, AR, CAC	AE
10.	Ability to perform basic ventilator management.	DPC, AR	AE
11.	Ability to place and manage pulmonary artery (Swan-Ganz) catheters and temporary pacemakers.	DPC, AR, DSP, EP	AE, DSP
12.	Ability to administer emergency thrombolytic treatment.	DPC, DSP, AR	AE
13.	Ability to perform CPR and advanced cardiac life support.	DPC, DSP, PC	AE
14.	Willingness and ability to help patients undertake basic strategies for prevention of cardiovascular disease, including modifications of diet and physical activity, and cessation of use of tobacco.	DPC, AR	AE
15.	Participation in and later leading of discussion of end-of-life issues with families.	DPC, AR	AE
16.	Insert central venous lines and arterial lines with proper technique.	DPC, DSP, AR	AE
17.	Ability to perform endotracheal intubation and transthoracic echo	DPC, DSP, AR, IL	AE

### B. Coronary Care Unit: Medical Knowledge

	<b>Principal Educational Goals</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
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1.	Expand clinically applicable knowledge base of the basic and clinical sciences underlying the care of patients with chest pain and acute cardiac disease.	DPC, AR	AE
2.	Access and critically evaluate current medical information and scientific evidence relevant to acute cardiac care.	DPC, AR	AE
3.	Understand indications for aggressive anticoagulant and antiplatelet therapy as well as the mechanisms of action of the various agents.	DPC, AR	AE
4.	Understand the physiologic and pathophysiologic principles of invasive hemodynamic monitoring including indications.	DPC, AR, CAC	AE
5.	Develop and demonstrate in-depth knowledge of the pathophysiology, clinical manifestations, diagnosis and management of cardiac diseases, as seen in a Coronary Care unit.	DPC, AR	AE
6.	Develop and demonstrate in-depth knowledge of the principles of diagnosis and management of essential hypertension; ischemic heart disease including unstable angina pectoris and myocardial infarction; congestive heart failure; cardiac arrhythmias especially atrial fibrillation, supraventricular tachycardia, and ventricular arrhythmias; rheumatic heart disease, and congenital heart disease.	DPC, AR, EP	AE
7.	Develop and demonstrate in-depth knowledge of the indications for, principles, complications, and interpretation of ECG, inpatient rhythm monitoring, exercise and chemical stress tests, electrophysiologic studies, transthoracic and transesophageal ECHO, nuclear cardiac imaging, right and left heart catheterization, coronary angiography, and percutaneous interventions.	DPC, DSP, AR, HC	AE, DSP
8.	Fully understand principles of assessment of lifetime cardiovascular risk & cardiovascular risk prevention.	DPC, AR, PCF	AE
9.	Develop in-depth knowledge of the strategies for cessation of use of tobacco.	DPC, AR	AE

### C. Coronary Care Unit: Interpersonal Skills and Communication

	<b>Principal Educational Goals</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
1.	Communicate effectively with patients and families in a stressful critical care environment.	DPC, AR	AE, ECR
2.	Communicate effectively with physician colleagues and members of other health care professions to assure timely, comprehensive patient care.	DPC, AR	AE, PR, ECR
3.	Communicate effectively with colleagues when signing out DPC or turning over care to another service.	DPC, AR	AE, PR, ECR

### D. Coronary Care Unit: Professionalism

	<b>Principal Educational Goals</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
1.	Interact professionally toward patients, families, colleagues, and all members of the health care team.	DPC	AE, PR, ECR
2.	Interacting with patients and families in a professionally appropriate manner.	DPC, PC	AE, ECR
3.	Acceptance of professional responsibility as the primary care physician for patients under his/her care.	DPC, PC	AE, ECR
4.	Appreciation of the social context of illness.	DPC	AE, ECR

5.	Effective utilization of ethics knowledge and consultants. This includes guidelines for CPR and DNR and end of life cardiac care.	DPC, ET	AE, PR, ECR
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### E. Coronary Care Unit: Practice-Based Learning and Improvement

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Identify and acknowledge gaps in personal knowledge and skills in care of acute cardiac patients.	DPC, CC, ECR	AE
2.	Develop real-time strategies for filling knowledge gaps that will benefit patients in the Coronary Care unit.	DPC	AE
3.	Commitment to professional scholarship, including systematic and critical perusal of relevant print and electronic literature, with emphasis on integration of basic science with clinical medicine, and evaluation of information in light of the principles of evidence-based medicine.	DPC, FS	AE

### F. Coronary Care Unit: Systems-Based Practice

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Understand and utilize the multidisciplinary resources necessary to care optimally for acutely ill cardiac patients.	DPC, PC	AE
2.	Collaborate with other members of the health care team to assure comprehensive Coronary Care.	DPC, PC	AE
3.	Use evidence-based, cost-conscious strategies in the care of patients with chest pain and other acute cardiac disease.	DPC	AE
4.	Knowing when to ask for help and advice from senior fellows and attending physicians.	DPC	AE, PR
5.	Effective professional collaboration with residents, other fellows, and faculty consultants from other disciplines such as Radiology and Surgery.	DPC, PC	AE, ECR
6.	Learning by participation in ward rounds, teaching conferences and other educational activities.	DPC, AR	AE
7.	Effective collaboration with other members of the health care team, including residents, medical students, nurses, clinical pharmacists, occupational therapists, physical therapists, nutrition specialists, patient educators, speech pathologists, respiratory therapists, enterostomy nurses, social workers, case managers, discharge planners, and providers of home health services.	DPC, PC	AE, ECR
8.	Effective utilization of ethics consultants, including knowing when and how to request consultation, and how best to utilize the advice provided.	DPC, PC	AE
9.	Consideration of the cost-effectiveness of diagnostic and treatment strategies.	DPC, ACS	AE
10.	Ability to lead team, including medical students, residents, nurses, clinical pharmacist, case manager, and social worker.	DPC, ACS	AE, ECR
11.	Willingness and ability to teach medical students and residents.	DPC	AE, PR

## **Objectives and expectations while on this rotation**

Fellows will gain the knowledge, skills and abilities to evaluate and manage patients in the CCU. They will also learn to communicate effectively with patients, their families as well as educating housestaff and medical students in the appropriate management and care of patients with coronary disease processes.

### **Fellows will gain the knowledge, skills and abilities to:**

- educate and guide housestaff and medical students in appropriate methods of patient management
- educate and guide housestaff in procedures including swan-ganz catheterization, arterial line cannulation, temporary pacemaker, and cardioversion
- identify risk stratification of post-myocardial infarction and unstable angina patients
- appreciate risk factors for atherosclerosis
- participate actively in rounds
- communicate actively with nursing staff, patients and their families

### **Learning Objectives**

Evaluation and management of patients with the following diagnoses:

- ST segment elevation myocardial infarction
- NonST segment elevation acute coronary syndrome
- Decompensated heart failure
- Ventricular and atrial tachyarrhythmias in critically ill patients
- Acute valvular heart disease
- Pericardial tamponade
- Acute aortic dissection
- Symptomatic Brady arrhythmias
- Complications from procedures

Become proficient in the performance and interpretation of the following procedures:

- Swan-ganz catheterization
- Arterial line
- Cannulation, temporary pacemaker, and cardioversion

Guide and educate housestaff on appropriate patient management decisions

### **Content and methods of instruction**

- Attend cardiology grand rounds (every Wednesday) and medical grand rounds (every Friday)
- Core curriculum consisting of twelve 30-60 minute lectures given by CCU attending, reviewing cardiovascular studies to help patient management, pathophysiology of acute coronary syndromes.
- Appropriate handouts accompany the lectures

### **Supervision**

The attending physician supervises all cardioversions with fellow and housestaff and the majority (90%) of swan ganz catheterizations and temporary pacemaker placements

**Evaluation Process:** *(fellows will be evaluated on each rotation using a competency-based system on E-Value).*

1. Fellows spend 15 consecutive days with one attending and 15 consecutive days with a second attending. Each attending evaluates and gives feedback to the fellow

2. Given the intense 15 day CCU experience, fellow competency is readily evaluated by the attending via the following:

- Rounds in A.M. and P.M., evaluating how well the fellow is able to recognize, evaluate and treat particular patients with the above listed diagnoses
- Constant contact throughout the day (and often the night) obtaining the fellows opinion on all cases that are admitted the CCU
- Feedback from housestaff as to the fellow's guidance and teaching abilities Feedback from nursing staff as to the fellow's ability to efficiently run the CCU